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| PCT/US00/00376 | 6 January 2000 (06.01.2000) | US |

(71) Applicant (for all designated States except US): GENENTECH, INC. [US/US]; 1 DNA Way, South San Francisco, CA 94080-4990 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): ASHKENAZI, Avi, J. [US/US]; 1456 Tarrytown Street, San Mateo, CA 94402 (US). BAKER, Kevin, P. [GB/US]; 14006 Indian Run Drive, Darnestown, MD 20878 (US). BOTSTEIN, David

[US/US]; 2539 Somerset Drive, Belmont, CA 94002 (US). DESNOYERS, Luc [CA/US]; 2050 Stockton Street, San Francisco, CA 94133 (US). EATON, Dan, L. [US/US]; 75 Knight Drive, San Rafael, CA 94901 (US). FERRARA, Napoleone [US/US]; 2090 Pacific Avenue #704, San Francisco, CA 94109 (US). FILVAROFF, Ellen [US/US]; 538 18th Avenue, San Francisco, CA 94121 (US). FONG, Sherman [US/US]; 19 Basinside Way, Alameda, CA 94502 (US). GAO, Wei-Qiang [CN/US]; 641 Pilgrim Drive, Foster City, CA 94404 (US). GERBER, Hanspeter [CH/US]; 1121 Tennessee Street #5, San Francisco, CA 94107 (US). GERRITSEN, Mary, E. [CA/US]; 541 Parrott Drive, San Mateo, CA 94402 (US). GODDARD, Audrey [CA/US]; 110 Congo Street, San Francisco, CA 94131 (US). GODOWSKI, Paul, J. [US/US]; 2627 Easton Drive, Burlingame, CA 94010 (US). GRIMALDI, Christopher, J. [US/US]; 1434 36th Avenue, San Francisco, CA 94122 (US). GURNEY, Austin, L. [US/US]; 1 Debbie Lane, Belmont, CA 94002 (US). HILLAN, Kenneth, J. [GB/US]; 64 Seward Street, San Francisco, CA 94114 (US). KLJAVIN, Ivar, J. [US/US]; 3673 Crescent Drive, Lafayette, CA 94549 (US). KUO, Sophia, S. [US/US]; Apartment 3, 59 Surrey Street, San Francisco, CA 94131 (US). NAPIER, Mary, A. [US/US]; 1015 Hayne Road, Hillsborough, CA 94010 (US). PAN, James [CA/US]; 2705 Coronet Boulevard, Belmont, CA 94002 (US). PAONI, Nicholas, F. [US/US]; 1756 Terrace Drive, Belmont, CA 94002 (US). ROY, Margaret, Ann [US/US]; 2960 Webster Street #4, San Francisco, CA 94123 (US). SHELTON, David, L. [US/US]; 5845 Clover Drive, Oakland, CA 94618 (US). STEWART, Timothy, A. [US/US]; 465 Douglass Street, San Francisco, CA 94114 (US). TUMAS, Daniel [US/US]; 3 Rae Avenue, Orinda, CA 94563 (US). WILLIAMS, P., Mickey [US/US]; 509 Alto Avenue, Half Moon Bay, CA 94019 (US). WOOD, William, I. [US/US]; 35 Southdown Court, Hillsborough, CA 94010 (US).

(74) Agents: KRESNAK, Mark, T. et al.; Genentech, Inc., 1 DNA Way, South San Francisco, CA 94080-4990 (US).

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[Continued on next page]

(54) Title: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC ACIDS ENCODING THE SAME

(57) Abstract: The present invention is directed to novel polypeptides and to nucleic acid molecules encoding those polypeptides. Also provided herein are vectors and host cells comprising those nucleic acid sequences, chimeric polypeptide molecules comprising the polypeptides of the present invention fused to heterologous polypeptide sequences, antibodies which bind to the polypeptides of the present invention and to methods for producing the polypeptides of the present invention.

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/04341

| | | | | | |
|---|---|------------|--|-----------|------------------------|
| A. CLASSIFICATION OF SUBJECT MATTER | | | | | |
| IPC 7 | C12N15/12 | C12N15/63 | C12N5/10 | C12N1/21 | C12N1/19 |
| | C07K14/47 | C07K14/705 | C07K19/00 | C07K16/18 | C07K16/28 |
| | G01N33/68 | G01N33/543 | A61K47/48 | A61K51/08 | A61K38/17 |
| According to International Patent Classification (IPC) or to both national classification and IPC | | | | | |
| B. FIELDS SEARCHED | | | | | |
| Minimum documentation searched (classification system followed by classification symbols) | | | | | |
| IPC 7 | C12N | C07K | G01N | A61K | |
| Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched | | | | | |
| Electronic data base consulted during the international search (name of data base and, where practical, search terms used) | | | | | |
| C. DOCUMENTS CONSIDERED TO BE RELEVANT | | | | | |
| Category * | Citation of document, with indication, where appropriate, of the relevant passages | | | | Relevant to claim No. |
| X | WO 98 57983 A (ZYMOGENETICS INC) 23 December 1998 (1998-12-23) the whole document --- | | | | 1-3, 5-13, 15-21 |
| A | KLEIN R D ET AL: "Selection for genes encoding secreted proteins and receptors" PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF USA, US, NATIONAL ACADEMY OF SCIENCE. WASHINGTON, no. 93, 1 July 1996 (1996-07-01), pages 7108-7113, XP002077277 ISSN: 0027-8424 the whole document --- | | | | |
| | -/-- | | | | |
| <input checked="" type="checkbox"/> Further documents are listed in the continuation of box C. <input checked="" type="checkbox"/> Patent family members are listed in annex. | | | | | |
| * Special categories of cited documents : "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "&" document member of the same patent family | | | | | |
| Date of the actual completion of the international search | | | Date of mailing of the international search report | | |
| 20 July 2000 | | | 18. 10. 00 | | |
| Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016 | | | Authorized officer Smalt, R | | |

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/04341

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|---|------------------------|
| A | YOKOYAMA-KOBAYASHI M ET AL: "A signal sequence detection system using secreted protease activity as an indicator" GENE,NL,ELSEVIER BIOMEDICAL PRESS. AMSTERDAM, vol. 163, no. 2, 3 October 1995 (1995-10-03), pages 193-196, XP004041983 ISSN: 0378-1119 the whole document --- | |
| A | EP 0 834 563 A (SMITHKLINE BEECHAM CORP) 8 April 1998 (1998-04-08) the whole document --- | |
| A | WO 97 07198 A (GENETICS INST) 27 February 1997 (1997-02-27) the whole document --- | |
| P,X, L | WO 99 46281 A (BAKER KEVIN P ;CHEN JIAN (US); GENENTECH INC (US); GURNEY AUSTIN () 16 September 1999 (1999-09-16) whole document, particularly the passages referring to PR0213 (e.g. pages 2,50,123,183), and the claims --- | 1-3, 5-13, 15-21 |
| P,X | WO 99 54437 A (MILLENNIUM BIOTHERAPEUTICS INC) 28 October 1999 (1999-10-28) the whole document ----- | 1-3, 5-13, 15-21 |

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 00/04341

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Invention 1 : claims 1-3, 5-13, 15-21, all partially

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Invention 1: claims 1-3,5-13,15-21, all partially

Nucleic acid with seq.ID.1, encoding a polypeptide comprising the amino acid sequence as represented in seq.ID.2 or a nucleic acid having at least 80% homology thereto, vector comprising said nucleic acid, host cell comprising said vector, process for producing the protein of seq.ID.2 using said host, the isolated protein or one having at least 80% homology thereto, a chimeric protein of said peptide fused to a heterologous sequence, isolated extracellular domain of said protein or said protein lacking its signal peptide, and an antibody against said polypeptide.

Invention 2: claims 1-29,38-43, and 50-53,
all partially

Nucleic acid with seq.ID.611, encoding a polypeptide comprising the amino acid sequence as represented in seq.ID.612 or a nucleic acid having at least 80% homology thereto, vector comprising said nucleic acid, host cell comprising said vector, process for producing the protein of seq.ID.612 using said host, the isolated protein or one having at least 80% homology thereto, a chimeric protein of said peptide fused to a heterologous sequence, isolated extracellular domain of said protein or said protein lacking its signal peptide, and an antibody against said polypeptide. Also a method of detecting PR0337 (seq.ID.523) using its interaction with PR04993 (seq.ID.612), method for linking a bioactive molecule to a cell expressing PR0337 through the use of PR04993, and method of modulating at least one activity of said cell thereby.

... Invention 3: claims 1-29,38-43, and 50-53,
all partially

Nucleic acid with seq.ID.522, encoding a polypeptide comprising the amino acid sequence as represented in seq.ID.523 or a nucleic acid having at least 80% homology thereto, vector comprising said nucleic acid, host cell comprising said vector, process for producing the protein of seq.ID.523 using said host, the isolated protein or one having at least 80% homology thereto, a chimeric protein of said peptide fused to a heterologous sequence, isolated extracellular domain of said protein or said protein lacking its signal peptide, and an antibody against said polypeptide. Also a method of detecting PR04993 (seq.ID.612) using its interaction with PR0337 (seq.ID.523), method for linking a bioactive molecule to a cell expressing PR04993 through the use of PR0337, and method of modulating at least one activity of said cell thereby.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Invention 4: claims 1-21,30-37,44-49, and 54-57,
all partially

Nucleic acid with seq.ID.613, encoding a polypeptide comprising the amino acid sequence as represented in seq.ID.614 or a nucleic acid having at least 80% homology thereto, vector comprising said nucleic acid, host cell comprising said vector, process for producing the protein of seq.ID.614 using said host, the isolated protein or one having at least 80% homology thereto, a chimeric protein of said peptide fused to a heterologous sequence, isolated extracellular domain of said protein or said protein lacking its signal peptide, and an antibody against said polypeptide. Also a method of detecting PRO700 (seq.ID.523), PRO725 (seq.ID.616) and/or PRO739 (seq.ID.618) using their interaction with PRO1559 (seq.ID.614), method for linking a bioactive molecule to a cell expressing PRO700, PRO725 or PRO739 through the use of PRO1559, and method of modulating at least one activity of said cell thereby.

Invention 5: claims 1-21,30-37,44-49, and 54-57,
all partially

Nucleic acid with seq.ID.89, encoding a polypeptide comprising the amino acid sequence as represented in seq.ID.90 or a nucleic acid having at least 80% homology thereto, vector comprising said nucleic acid, host cell comprising said vector, process for producing the protein of seq.ID.90 using said host, the isolated protein or one having at least 80% homology thereto, a chimeric protein of said peptide fused to a heterologous sequence, isolated extracellular domain of said protein or said protein lacking its signal peptide, and an antibody against said polypeptide. Also a method of detecting PRO1559 (seq.ID.614) using its interaction with PRO700 (seq.ID.90), method for linking a bioactive molecule to a cell expressing PRO1559 through the use of PRO700, and method of modulating at least one activity of said cell thereby.

Invention 6: claims 1-21,30-37,44-49, and 54-57,
all partially

Nucleic acid with seq.ID.615, encoding a polypeptide comprising the amino acid sequence as represented in seq.ID.616 or a nucleic acid having at least 80% homology thereto, vector comprising said nucleic acid, host cell comprising said vector, process for producing the protein of seq.ID.616 using said host, the isolated protein or one having at least 80% homology thereto, a chimeric protein of

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

PRO381, as represented by seq.ID's 144 and 145,
PRO386, as represented by seq.ID's 149 and 150,
PRO540, as represented by seq.ID's 156 and 157,
PRO615, as represented by seq.ID's 161 and 162,
PRO618, as represented by seq.ID's 168 and 169,
PRO719, as represented by seq.ID's 177 and 178,
PRO724, as represented by seq.ID's 182 and 183,
PRO772, as represented by seq.ID's 189 and 190,
PRO852, as represented by seq.ID's 195 and 196,
PRO853, as represented by seq.ID's 205 and 206,
PRO860, as represented by seq.ID's 210 and 211,
PRO846, as represented by seq.ID's 215 and 216,
PRO862, as represented by seq.ID's 220 and 221,
PRO864, as represented by seq.ID's 225 and 226,
PRO792, as represented by seq.ID's 230 and 231,
PRO866, as represented by seq.ID's 235 and 236,
PRO871, as represented by seq.ID's 244 and 245,
PRO873, as represented by seq.ID's 253 and 254,
PRO940, as represented by seq.ID's 258 and 259,
PRO941, as represented by seq.ID's 263 and 264,
PRO944, as represented by seq.ID's 269 and 270,
PRO983, as represented by seq.ID's 283 and 284,

Claim : 9

PRO1057, as represented by seq.ID's 295 and 296,
PRO1071, as represented by seq.ID's 300 and 301,
PRO1072, as represented by seq.ID's 302 and 303,
PRO1075, as represented by seq.ID's 308 and 309,
PRO181, as represented by seq.ID's 321 and 322,
PRO195, as represented by seq.ID's 329 and 330,
PRO865, as represented by seq.ID's 336 and 337,
PRO827, as represented by seq.ID's 345 and 346,
PRO1114, as represented by seq.ID's 351 and 352,
PRO237, as represented by seq.ID's 357 and 358,
PRO541, as represented by seq.ID's 362 and 363,
PRO273, as represented by seq.ID's 369 and 370,
PRO701, as represented by seq.ID's 374 and 375,
PRO704, as represented by seq.ID's 379 and 380,
PRO706, as represented by seq.ID's 384 and 385,
PRO707, as represented by seq.ID's 389 and 390,
PRO322, as represented by seq.ID's 394 and 395,
PRO526, as represented by seq.ID's 399 and 400,
PRO531, as represented by seq.ID's 404 and 405,
PRO534, as represented by seq.ID's 409 and 410,
PRO697, as represented by seq.ID's 414 and 415,
PRO717, as represented by seq.ID's 419 and 420,
PRO731, as represented by seq.ID's 424 and 425,
PRO218, as represented by seq.ID's 429 and 430,
PRO768, as represented by seq.ID's 436 and 437,
PRO771, as represented by seq.ID's 441 and 442,
PRO733, as represented by seq.ID's 446 and 447,
PRO162, as represented by seq.ID's 451 and 452,
PRO788, as represented by seq.ID's 453 and 454,

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

PR01008, as represented by seq.ID's 455 and 456,
PR01012, as represented by seq.ID's 458 and 459,
PR01014, as represented by seq.ID's 463 and 464,
PR01017, as represented by seq.ID's 465 and 466,
PR0474, as represented by seq.ID's 467 and 468,
PR01031, as represented by seq.ID's 469 and 470,
PR0938, as represented by seq.ID's 471 and 472,
PR01082, as represented by seq.ID's 476 and 477,
PR01083, as represented by seq.ID's 482 and 483,
PR0200, as represented by seq.ID's 487 and 488,
PR0285, as represented by seq.ID's 495 and 496,
PR0286, as represented by seq.ID's 497 and 498,
PR0213-1, as represented by seq.ID's 505 and 506,
PR01330, as represented by seq.ID's 507 and 508,
PR01449, as represented by seq.ID's 509 and 510,
PR0298, as represented by seq.ID's 514 and 515,
PR0403, as represented by seq.ID's 525 and 526,

For the sake of conciseness, the first subject matter is explicitly defined, the other subject matters are defined by analogy thereto.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 00/04341

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
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| WO 9707198 A | 27-02-1997 | US 5707829 A AU 6712396 A AU 6768596 A CA 2227220 A CA 2229208 A EP 0839196 A EP 0851875 A JP 11510045 T US 6043344 A WO 9704097 A US 6074849 A US 5969093 A | 13-01-1998 18-02-1997 12-03-1997 06-02-1997 27-02-1997 06-05-1998 08-07-1998 07-09-1999 28-03-2000 06-02-1997 13-06-2000 19-10-1999 |
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